EUROPEAN COMMISSION
Information Society and Media Directorate General

Lisbon Strategy and Policies for the Information Society
Lisbon Strategy and i2010

Use of Computers and the Internet in Schools in Europe 2006

Country Brief: Malta

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Key findings

All Maltese schools now use computers for teaching and have internet access. A very high 95% use the internet via a broadband connection. With this figure Malta ranks top in Europe together with Denmark and Estonia out of the 27 countries participating in the survey. There is very little variation between school types with broadband access ranging from 93% in primary schools to 100% in vocational schools:

In 77% computers and the internet are integrated into the teaching of most subjects – which is slightly higher than the European average – with very little differences across the school types.

Maltese teachers are very active users of ICT in class. Only a minority of 23% of the teachers using computers use them in less than 10% of all lessons, more than half make use of ICT in more than 25% of their lessons and almost a fifth state that they use computers in more than half of their lessons.

The learning material that is used least is material available on the school's computer network or database which is only the case in a quarter of the schools. In no other country is less frequent use of this option made which may be an indication of the rather poor quality of electronic teaching material made available by schools in Malta. Teachers have to become active in finding material elsewhere.

In Malta, the older and the younger teachers (indicator used here: years of teaching experience) all make quite intensive use of ICT in class. No matter which type of school, around half of the teachers in all age groups use ICT in more than 25% of their lessons. With these figures, Malta belongs to the top countries in Europe.

25% of teachers in Malta (around the European average) still do not use computers in class. When asked for the most important barrier, 39% state a lack of computers in their schools as an important barrier followed by 25% expressing lack of adequate material as a problem

Only 1% of all and just 2% of those teachers not using ICT are not convinced of any benefits of using computers in class. This is one of the best country results in this survey. The same holds true for "lack of interest of teachers" which is not stated as a problem at all (0%) and "lack of adequate skills of teachers" (14%) where Malta also shows a good performance. One can conclude that interest in, motivation for and competence to use ICT in class does not seem to be a problem in Malta.

Maltese teachers reach very high ratings on all ICT competence and skills indicators, placing them among the top performers in terms of ICT skills in Europe.

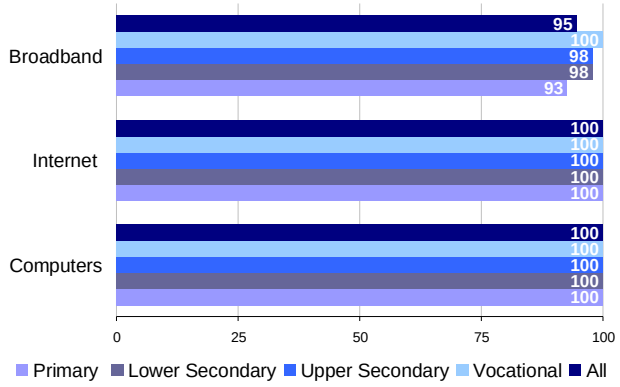
Almost all of the Maltese teachers (97%) see significant learning benefits for pupils when using ICT. Here Malta takes the first rank in Europe.

Lack of motivation and competence of teachers do not constitute a problem in Malta, but access to ICT does, since 45% of the teachers with the necessary skills and motivation indicate this to be a problem despite the fact that 100% of Maltese schools are equipped with ICT and have internet access. Against this background one can conclude that there seems to be an ICT and access problem in Maltese schools where the pupil/computer ratio only reaches 11 computers for 100 pupils as opposed to for instance almost 30 computers in the European frontrunner country Denmark.

ICT Equipment and Internet in Schools

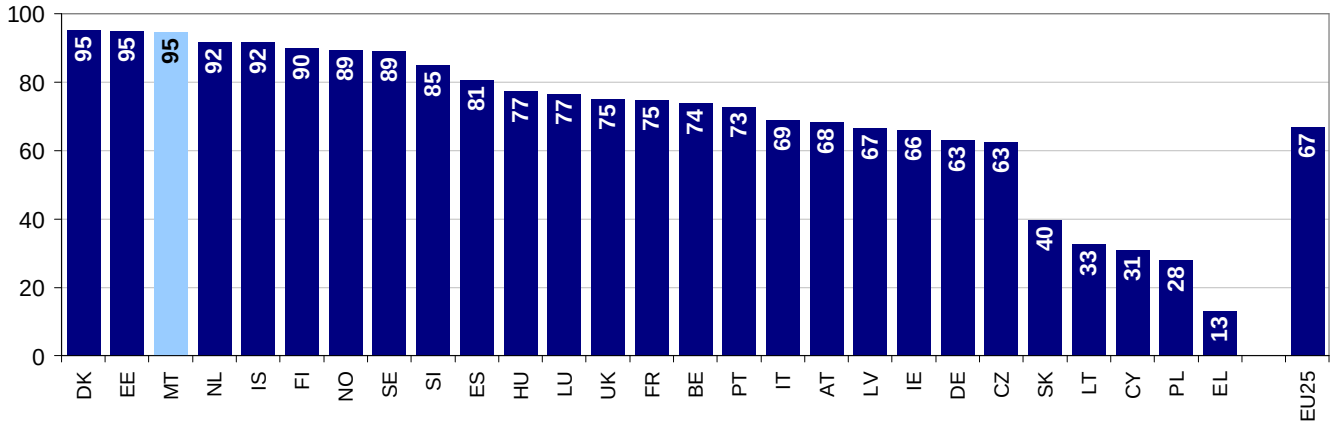
All Maltese schools now use computers for teaching and have internet access. A very high 95% use the internet via a broadband connection. With this figure Malta ranks top in Europe together with Denmark and Estonia out of the 27 countries participating in the survey. There is very little variation between school types with broadband access ranging from 93% in primary schools to 100% in vocational schools:

Percentage of Schools Using Computers, Internet Connection, and Broadband Internet Access According to School Type in Malta 2006



Source: *LearnInd HTS 2006;* ***Base:*** *All schools;* ***Question:*** *Computers: Q6; Internet, Broadband: Q9. See questionnaire for exact wording.*

Percentage of Schools with Broadband Internet Access in Europe 2006



Source: *LearnInd HTS 2006;* ***Base:*** *All schools;* ***Question:*** *Q9. See questionnaire for exact wording.*

63% of schools have a website, 79% offer e-mail to teachers, and 66% do so to pupils. 52% of the Maltese schools using computers for teaching, use them in classrooms with the highest percentage being achieved in primary schools (77%).

Those schools with a broadband connection to the internet are much more likely to have a more sophisticated ICT infrastructure including a school website, the use of a LAN or the availability of an intranet.

The use of Computers and the Internet in Schools

Computers are used for various purposes and as part of teaching different subjects in schools but also and very widely as a separate subject.

Computer sciences are taught as a separate subject in significantly more than 80% of lower and upper secondary and vocational schools and in 47% of primary schools, according to the statements made by Maltese head teachers.

In 77% computers and the internet are integrated into the teaching of most subjects – which is slightly higher than the European average – with little differences across the school types. Particularly in primary schools (91%) ICT are used for teaching foreign languages. Only Denmark, Sweden and Norway are more actively using ICT in primary schools for this purpose.

75% of Maltese classroom teachers had used computers in class in the 12 months prior to the survey, with little variation across school types and between urban and rural areas. For most teachers, this includes not only using a computer for presentation purposes but also the use of computers by pupils in class.

ICT equipment in Maltese schools 2006

				Educational Level (MT)				Type of locality (MT)			Internet Access (MT)	
	Total MT	Total EU25	Total NMS10	Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated	Narrow-band	Broadband
Computers per 100 pupils [a]	11.0	11.3	7.1	12.8	*8.9**	*8.9**	*12.2***	N/A	N/A	N/A	*12.6***	10.9
... of which internet connected	10.2	9.9	6.4	12.2	*8.6**	*8.6**	*10.2***	N/A	N/A	N/A	*10.6***	10.2
Percentage of schools having...												
Computers for teaching [b]	100.0	98.7	96.7	100.0	*100.0**	*100.0**	*100.0***	N/A	N/A	N/A	*100.0***	100.0
Internet access [c]	100.0	96.2	94.7	100.0	*100.0**	*100.0**	*100.0***	N/A	N/A	N/A	*100.0***	100.0
Broadband internet access [d]	94.5	66.9	43.4	92.6	*97.8**	*97.8**	*100.0***	N/A	N/A	N/A	*0.0***	100.0
A website [e]	62.7	63.0	66.7	56.3	*69.6**	*69.6**	*100.0***	N/A	N/A	N/A	*80.4***	61.7
An e-mail address for the majority of teachers [f]	78.9	65.2	48.1	82.3	*68.6**	*68.6**	*83.2***	N/A	N/A	N/A	*100.0***	77.6
An e-mail address for the majority of pupils [g]	66.4	23.5	24.4	69.6	*62.7**	*62.7**	*49.5***	N/A	N/A	N/A	*80.4***	65.5
A LAN [h]	59.9	55.2	60.4	52.8	*69.6**	*69.6**	*83.2***	N/A	N/A	N/A	*22.0***	62.1
An intranet [i]	29.1	40.8	26.9	26.9	*26.8**	*26.8**	*83.2***	N/A	N/A	N/A	*22.0***	29.6
An external support or maintenance contract [j]	67.7	47.1	44.3	75.0	*53.7**	*53.7**	*33.6***	N/A	N/A	N/A	*65.5***	67.8
Percentage of schools using computers for education in…												
Computer labs [k]	55.5	80.5	94.6	29.3	*100.0**	*100.0**	*100.0***	N/A	N/A	N/A	*34.5***	56.7
Classrooms [l]	51.7	61.4	29.5	77.3	*12.8**	*12.8**	*16.4***	N/A	N/A	N/A	*65.5***	50.9
School library [m]	21.4	33.4	36.8	8.3	*47.8**	*47.8**	*16.4***	N/A	N/A	N/A	*19.6***	21.5
Other locations accessible for pupils [n]	16.0	27.0	20.2	17.3	*13.0**	*13.0**	*49.5***	N/A	N/A	N/A	*0.0***	16.9

Source: *LearnInd HTS 2006;* ***Base:*** *a: all pupils; b-j: all schools, k-n: schools using computers for educational purposes for pupils (cf. index b);* ***Question:*** *a: Q4, Q6, Q7; b: Q6; c: Q9; d: Q9; e-j: Q12; k-n: Q8. See questionnaire for exact wording.* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases; "xx.x** " based on less than 10 cases. No type of locality breakdown possible due to small sample size.*

Use of computers in class in Malta 2006

Assessments of the head teacher		Total MT	Total EU25	Total NMS10	Educational Level (MT)				Type of locality (MT)			Internet Access (MT)	
					Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated	Narrow-band	Broadband
Computer sciences taught as separate subject	Agree	61.1	54.7	91.2	47.1	*87.7**	*87.7**	*83.2***	N/A	N/A	N/A	56.6	*61.4***
	Disagree	36.4	43.7	8.4	52.9	*8.3**	*8.3**	*0.0***	N/A	N/A	N/A	43.4	*36.0***
	Don't know	2.5	1.6	0.4	0.0	*4.0**	*4.0**	*16.8***	N/A	N/A	N/A	0.0	*2.6***
Computers and the internet are													
integrated into teaching of most subjects	Agree	77.1	75.3	73.1	76.8	*73.6**	*73.6**	*66.4***	N/A	N/A	N/A	100.0	*75.8***
	Disagree	22.9	24.1	26.4	23.2	*26.4**	*26.4**	*33.6***	N/A	N/A	N/A	0.0	*24.2***
	Don't know	0.0	0.6	0.4	0.0	*0.0**	*0.0**	*0.0***	N/A	N/A	N/A	0.0	*0.0***
computers and the internet are used for teaching traditional subjects or basic skills	Agree	77.5	75.8	72.3	91.3	*60.0**	*60.0**	*66.4***	N/A	N/A	N/A	80.4	*77.3***
	Disagree	21.7	22.8	26.0	8.7	*37.8**	*37.8**	*33.6***	N/A	N/A	N/A	19.6	*21.8***
	Don't know	0.8	1.4	1.7	0.0	*2.2**	*2.2**	*0.0***	N/A	N/A	N/A	0.0	*0.9***
used for teaching foreign languages	Agree	72.0	56.6	71.1	75.9	*64.0**	*64.0**	*49.5***	N/A	N/A	N/A	65.5	*72.3***
	Disagree	26.4	40.1	28.0	22.8	*31.6**	*31.6**	*50.5***	N/A	N/A	N/A	34.5	*25.9***
	Don't know	1.6	3.3	0.8	1.3	*4.4**	*4.4**	*0.0***	N/A	N/A	N/A	0.0	*1.7***
used for teaching students with special needs/ handicaps	Agree	73.9	71.7	58.3	79.9	*67.3**	*67.3**	*66.4***	N/A	N/A	N/A	78.0	*73.7***
	Disagree	24.5	23.7	31.6	20.1	*28.4**	*28.4**	*33.6***	N/A	N/A	N/A	22.0	*24.6***
	Don't know	1.6	4.6	10.1	0.0	*4.3**	*4.3**	*0.0***	N/A	N/A	N/A	0.0	*1.7***

Source: *LearnInd HTS 2006;* ***Base:*** *All schools using computers for educational purposes for pupils;* ***Question:*** *Q13: "To what extent do you agree or disagree with the following statements regarding the educational use of computers and/or the internet in your school?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases; "xx.x** " based on less than 10 cases. No type of locality breakdown possible due to small sample size.*

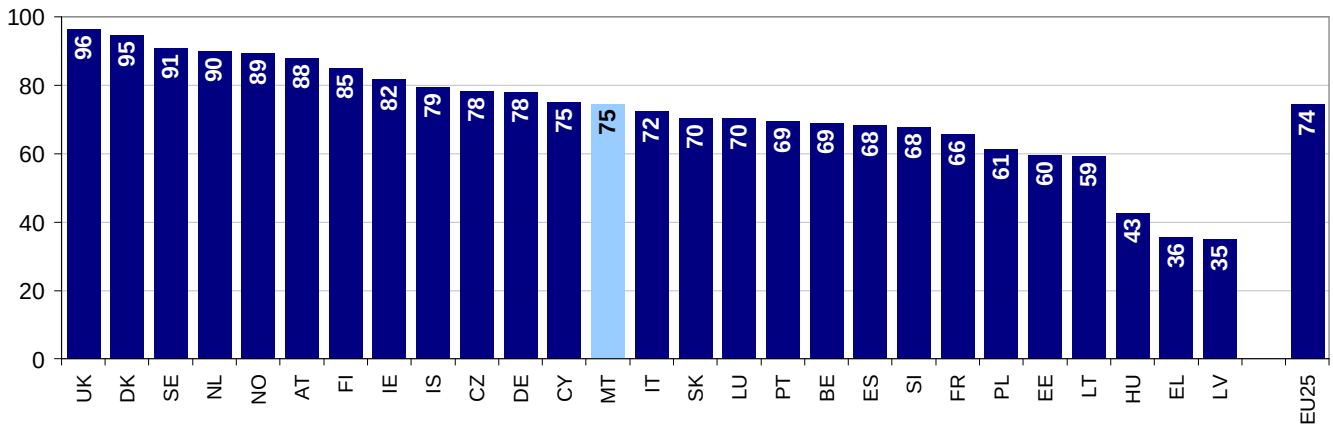
Maltese teachers are very active users of ICT in class. Only a minority of 23% of the teachers using computers use them in less than 10% of all lessons, more than half make use of ICT in more than 25% of their lessons and almost a fifth state that they use computers in more than half of their lessons. Teachers in vocational schools use computers in class most frequently compared to their colleagues in general education with more than 90% of the vocational school teachers using computers in more than a quarter of their lessons.

Maltese teachers using computers do not restrict themselves to a particular source of information but use a multitude of different material from a variety of sources for teaching purposes which in most categories is above or around the European average. Again, vocational school teachers are most active.

The learning material that is used least is material available on the school's computer network or database which is only the case in a quarter of the schools. In no other country is less frequent use of this option made which may be an indication of the rather poor quality of electronic teaching material made available by schools in Malta. Teachers have to become active in finding material elsewhere.

In Malta, the older and the younger teachers (indicator used here: years of teaching experience) all make quite intensive use of ICT in class. No matter which type of school, around half of the teachers in all age groups use ICT in more than 25% of their lessons. With these figures, Malta belongs to the top countries in Europe.

Percentage of teachers who have used computers in class in the last 12 months (2006)



Source: *LearnInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *Q7. See questionnaire for exact wording*

Teachers' use of computers in class in Malta 2006

Percentage of teachers who …	Total MT	Total EU25	Total NMS10	Educational Level (MT)				Type of locality (MT)			Years of teaching experience (MT)			
				Primary	Lower secon-dary	Upper secon-dary	Voca-tional	Densely popu-lated	Inter-mediate	Thinly popu-lated	<5 y	5-9 y	10-19 y	20+ y
...have used computers in class[1]	74.5	74.3	61.3	82.6	59.1	59.1	*76.7**	N/A	N/A	N/A	*68.1**	84.2	79.3	*59.1**
…use a computer in class to present or demonstrate	65.5	63.4	55.5	73.5	51.6	51.6	*70.7**	N/A	N/A	N/A	*54.3**	75.9	69.5	*56.7**
…have pupils use a computer in class	65.4	66.3	53.8	76.1	45.7	45.7	*70.0**	N/A	N/A	N/A	*62.3**	73.0	65.1	*56.7**

Source: *LearnInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *Q7 "How have you used computers and/or the internet for work in the last 12 months?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases. No type of locality breakdown possible due to small sample size.*

25% of teachers in Malta (around the European average) do not use computers in class. When asked for the most important barrier, 39% state a lack of computers in their schools as an important barrier followed by 25% expressing lack of adequate material as a problem. This results in 10% of all Maltese teachers (25% non-users multiplied with 39% of teachers agreeing to this item) to whom "lack of equipment in school" constitutes an important barrier.

None of the other issues that in many other countries seem to create problems are stated as such.

Only 1% of all and just 2% of those teachers not using ICT are not convinced of any benefits of using computers in class. This is one of the best country results in this survey. The same holds true for "lack of interest of teachers" which is not stated as a problem at all (0%) and "lack of adequate skills of teachers" (14%) where Malta also shows a good performance. One can conclude that interest in, motivation for and competence to use ICT in class does not seem to be a problem in Malta.

Frequency of computers use in class Malta 2006

Percentage of all teachers *using computers in class* who …	Total MT	Total EU25	Total NMS10	Educational Level (MT)				Type of locality (MT)			Years of teaching experience (MT)			
				Primary	Lower secon-dary	Upper secon-dary	Voca-tional	Densely popu-lated	Inter-mediate	Thinly popu-lated	<5 y	5-9 y	10-19 y	20+ y
…use computers in 5% and less of all lessons	10.1	18.5	15.0	7.6	13.8	13.8	*8.7**	N/A	N/A	N/A	*7.9*	*5.9*	*14.9*	*13.9*
in 6 to 10% of lessons	12.5	22.5	17.7	14.1	8.1	8.1	*0.0**	N/A	N/A	N/A	*10.3*	*12.4*	*14.7*	*11.5*
in 11 to 24% of lessons	26.9	22.2	22.1	29.1	24.4	24.4	*0.0**	N/A	N/A	N/A	*32.9*	*28.1*	*23.5*	*21.4*
in 25 to 50% of lessons	32.6	20.2	24.0	35.7	24.2	24.2	*25.2**	N/A	N/A	N/A	*23.4*	*36.2*	*35.5*	*32.4*
more than 50% of lessons	17.9	16.5	21.3	13.4	29.5	29.5	*66.1**	N/A	N/A	N/A	*25.4*	*17.4*	*11.3*	*20.8*

Source: *LearnInd CTS 2006;* ***Base:*** *Teachers using computers in class, "don't know" answers excluded;* ***Question:*** *Q9 "For what percentage of time have you used computers and/or the internet in class when teaching your main subject(s) in the past 12 months?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases. No type of locality breakdown possible due to small sample size.*

Source of educational material used in class in Malta 2006

Percentage of all teachers *using computers in class*[2] who …	**Total MT**	**Total EU25**	**Total NMS10**	**Educational Level**				**Type of locality**		
				Primary	**Lower secondary**	**Upper secondary**	**Vocational**	**Densely populated**	**Inter-mediate**	**Thinly populated**
…use material they have searched the internet for	82.1	82.7	81.8	80.7	85.9	85.9	*100.0**	N/A	N/A	N/A
…use existing online material from established educational sources	80.1	74.2	61.8	83.3	71.5	71.5	*92.2**	N/A	N/A	N/A
…use material that is available on the school's computer network or database	26.2	63.1	52.7	22.8	31.8	31.8	*48.7**	N/A	N/A	N/A
…use electronic offline material (such as CD ROMS)	80.1	83.0	82.2	82.7	70.4	70.4	*82.6**	N/A	N/A	N/A
…use other learning material when using computers in class	4.9	8.8	10.8	3.0	9.4	9.4	*17.4**	N/A	N/A	N/A

Source: *LearnInd CTS 2006;* ***Base:*** *Teachers using computers in class;* ***Question:*** *Q10 "Which of the following types of materials have you used when teaching your main subject(s) with the aid of a computer and/or the internet?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases. No type of locality breakdown possible due to small sample size.*

Barriers to computer use in class in Malta 2006

Percentage of all teachers ***not*** *using computers in class*	Total MT	Total EU25	Total NMS10	Educational Level				Type of locality		
				Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated
Lack of computers	38.5	48.8	49.0	*23.2**	*49.8**	*49.8**	*28.6*	N/A	N/A	N/A
Lack of adequate content/material	25.3	20.3	16.5	*31.7**	*20.2**	*20.2**	*71.4***	N/A	N/A	N/A
Lack of content in national language	1.6	8.6	5.7	*0.0**	*2.7**	*2.7**	*0.0***	N/A	N/A	N/A
Lack of adequate skills of teachers	13.9	22.5	9.8	*10.5**	*15.5**	*15.5**	*0.0***	N/A	N/A	N/A
No or unclear benefits	2.3	16.2	6.8	*5.2**	*0.0**	*0.0**	*0.0***	N/A	N/A	N/A
Lack of interest of teachers	0.0	8.9	3.3	*0.0**	*0.0**	*0.0**	*0.0***	N/A	N/A	N/A
Subject does not lend itself to being taught via computers	9.1	24.4	25.0	*9.2**	*11.4**	*11.4**	*0.0***	N/A	N/A	N/A
Other	19.3	21.3	20.3	*25.4**	*13.4**	*13.4**	*0.0***	N/A	N/A	N/A

Source: *LearnInd CTS 2006;* ***Base:*** *all teachers not using computers in class;* ***Question:*** *Q12: "Why do you not use computers and/or the internet when teaching in class?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases; "xx.x** " based on less than 10 cases. No type of locality breakdown possible due to small sample size.*

Attitudes on the Usefulness of ICT use in Teaching

Computers and the internet have arrived in Maltese schools with 11 computers per 100 pupils, while primary schools and vocational schools are better equipped with 13 and 12 computers per 100 pupils compared to 9 in secondary schools. The share of teachers in Malta – but also in the European Union in general – who believe that computers and the internet should not at all be used in schools, is very low and below 1%.

Maltese teachers have positive attitudes about the different applications for ICT in teaching but achieve figures which are mostly below the European average.

Access, Competence and Motivation for Using ICT and the Internet in Schools

Access

A majority of Maltese teachers are more or less satisfied with the technical access means at their schools: 77% state that their school is well equipped with computers but only 58% express the opinion that their internet connection is fast enough. 65% wish there were better support and maintenance actions taken. In terms of content a minority states problems with respect to finding adequate learning materials (19%) and argue that existing material are of poor quality (26%).

Competence in using ICT

Maltese teachers feel very competent in using e-mail and using a text processor programme but are a little less confident with downloading and installing software and with using presentation software packages. However, they reach very high ratings on all these four items, placing them among the top performers in terms of ICT skills in Europe.

Primary school teachers (39%) seem to be less ICT competent than those in secondary and vocational schools (59%).

Motivation for ICT use in Schools

A very high 91% of Maltese teachers see significant learning benefits for pupils using computers in class and say that pupils are more motivated and attentive when computers and the internet are used in class. Almost all of the Maltese teachers (97%) see significant learning benefits for pupils when using ICT. Here Malta takes the first rank in Europe.

Attitudes on the Usefulness of ICT use in Teaching in Malta 2006

Percentage of teachers saying computers/internet should be used for …	Total MT	Total EU25	Total NMS10	Educational Level				Type of locality		
				Primary	Lower secondary	Upper secondary	Vocational	Densely populated	Inter-mediate	Thinly populated
Letting pupils do exercises and practise	81.2	79.9	78.8	87.0	69.0	69.0	*71.3**	N/A	N/A	N/A
Letting pupils retrieve information in a self-directed manner	82.1	85.0	87.8	80.1	86.5	86.5	*100.0**	N/A	N/A	N/A
Teaching about office tools	44.0	61.3	51.0	44.3	44.6	44.6	*64.7**	N/A	N/A	N/A
Collaborative and productive work by pupils	55.4	80.5	67.2	56.8	54.9	54.9	*64.0**	N/A	N/A	N/A
Computer/internet should not be used for any of these in teaching	0.9	0.6	0.5	0.0	2.3	2.3	*0.0**	N/A	N/A	N/A

Source: *LearnInd CTS 2006;* ***Base:*** *all teachers;* ***Question:*** *Q13: "What do you think for what computers and the internet should be used for in teaching?"* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases. No type of locality breakdown possible due to small sample size.*

Teachers' access, competence and motivation for using ICT in class 2006

Percentage of teachers agreeing or strongly agreeing:	Total MT	Total EU25	Total NMS10	Educational Level: Primary	Lower secondary	Upper secondary	Vocational	Subject of teaching: General primary	Literature and languages	Humanities and social sciences	Science, maths, computer sciences	Physical, artistic, crafts education	Vocational education
Access													
Our school is well equipped with computers [a]	76.5	74.2	76.5	80.5	69.4	69.4	*73.3**	80.0	*68.6*	*75.2*	80.6	*74.3**	*0.0***
The internet connection we have is sufficiently fast [b]	57.6	77.2	78.2	57.4	64.1	64.1	*66.7**	52.0	*63.7*	*59.3*	63.7	*48.6**	*100.0***
Better technical maintenance and support is required in our school [c]	64.7	64.8	64.6	64.4	65.4	65.4	*25.0**	68.8	*58.6*	*62.3*	52.6	*63.5**	*100.0***
Existing teaching materials on the Internet are of poor quality [d]	26.3	29.9	29.3	25.4	26.3	26.3	*6.7**	28.7	*20.4*	*24.6*	17.4	*28.9**	*0.0***
It is hard to find adequate learning materials for teaching [e]	19.2	38.7	30.5	13.4	30.2	30.2	*6.7**	14.5	*15.0*	*17.4*	26.7	*27.5**	*0.0***
Motivation													
Pupils are more motivated and attentive when computers and the internet are used in class [f]	91.2	86.3	90.1	93.7	88.4	88.4	*93.3**	92.9	*72.8*	*100.0*	92.7	*95.6**	*100.0***
Using computers in class does not have significant learning benefits for pupils [g]	3.3	20.7	9.5	3.8	1.1	1.1	*6.7**	4.3	*0.0*	*0.0*	1.7	*5.0**	*0.0***
Competence													
Teachers in our school do not have sufficient computer skills [h]	44.0	42.0	30.6	38.9	51.5	51.5	*59.3**	36.8	*63.7*	*43.8*	55.3	*42.8**	*0.0***
Competence / computer skills (Percentage of teachers who feel very confident at…)													
Using text processors [i]	80.6	65.0	63.2	76.1	92.3	92.3	*100.0**	73.8	*100.0***	*79.7**	*95.9**	*80.5**	--
Creating electronic presentations [j]	61.0	34.0	41.0	54.1	78.7	78.7	*73.9**	52.5	*60.0***	*71.9**	*73.3**	*63.8**	--
Using e-mail [k]	76.3	65.9	64.8	69.9	92.5	92.5	*91.3**	67.8	*100.0***	*92.2**	*91.9**	*72.3**	--
Downloading and installing software [l]	49.9	35.8	34.6	42.4	65.9	65.9	*82.6**	40.6	*40.0***	*64.2**	*64.7**	*37.5**	--

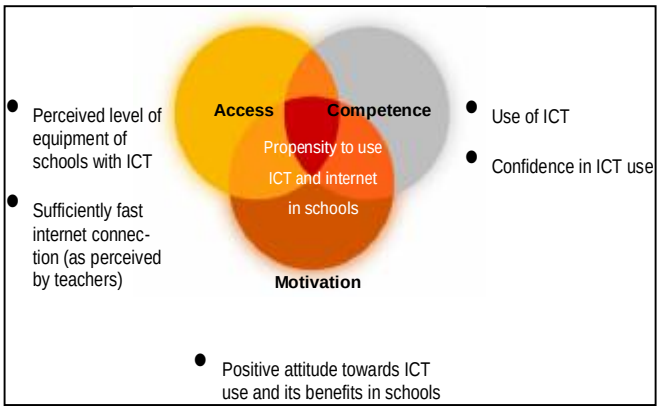
Source: *LearnInd CTS 2006;* ***Base:*** *a-h All teachers; i -l Teachers using computers in class* ***Question:*** *a-h Q14, i-l Q11.* ***Notes:*** *"xx.x*": based on at least 10 and less than 50 cases; "xx.x** " based on less than 10 cases. No type of locality breakdown possible due to small sample size.*

ICT Readiness of Teachers – the ACM Model

The ACM model as developed by Viherä and Nurmela (2001)[3] was applied in LearnInd to generate a typology according to the "propensity to the use of computers and internet by teachers in classroom situations at schools".

The typology in the figure below takes account of the three main categories of preconditions which need to be given for a school to make use of computers and the internet in the teaching process in classrooms, computer labs etc.

The Access-Competence-Motivation Model



These are: access (to computers and the internet at school), competence (in using the computer software and the internet, and applying it for teaching purposes), and motivation (gauged through the attitude that using computers in classrooms results in significant learning benefits).

Any attempt to group the classroom teachers according to their propensity to becoming users of computers and the internet in their teaching processes needs to take account of these three dimensions. In the present application of the ACM model data from the Classroom Teacher Survey (CTS) was used. Therefore "access" for instance is to be understood as a perceived level of computer equipment at schools and teachers' satisfaction therewith rather than an objective measure of equipment status.

Access, Motivation and Competence of Teachers for Using ICT in Schools in Malta 2006

MT	EU25	Access	Competence	Motivation
2.7	4.3	~~Access~~	~~Competence~~	~~Motivation~~
1.1	3.9	**Access**	~~Competence~~	~~Motivation~~
6.6	9.7	~~Access~~	**Competence**	~~Motivation~~
2.6	5.0	~~Access~~	~~Competence~~	**Motivation**
6.0	13.7	**Access**	**Competence**	~~Motivation~~
2.0	4.8	**Access**	~~Competence~~	**Motivation**
44.5	20.7	~~Access~~	**Competence**	**Motivation**
34.4	37.9	**Access**	**Competence**	**Motivation**
100	100			

Percentage of teachers. ***Source:*** *LeanInd CTS 2006;* ***Base:*** *All teachers;* ***Question:*** *See endnote* [4]

38% of European teachers dispose of sufficient access to the internet at school, the necessary competence in using ICT in class and are motivated to its use. With 34% of the teachers belonging to this group, Malta ranks at 14th which places the country right in the middle of the European countries. Overall the UK with 60% ranks top and Latvia with 15% finds itself at the very end.

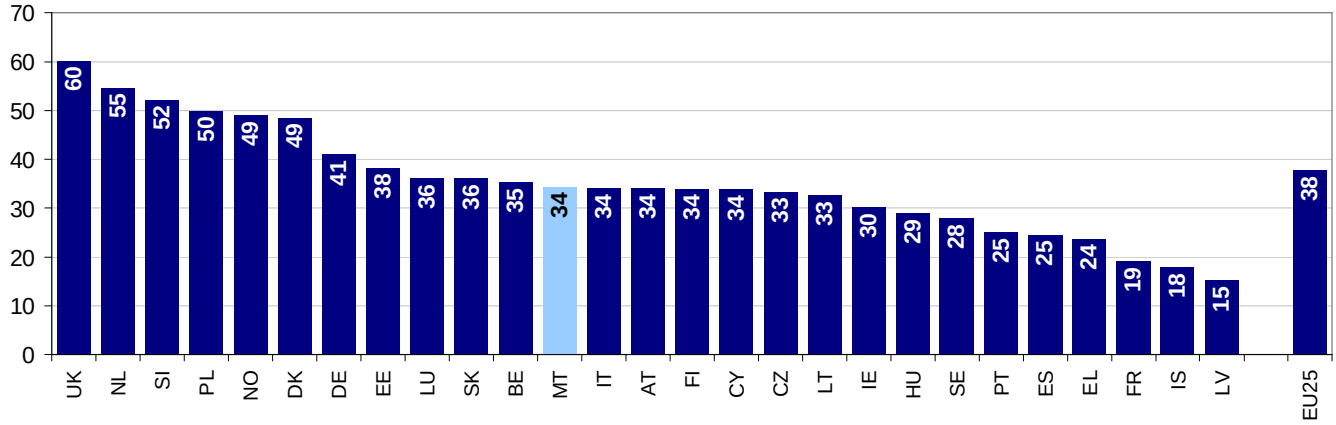
The as yet insufficient internet connection in many schools and the lack of motivation of teachers for using ICT are the most critical issues for a wider uptake of computers

and the internet in schools in Europe. 20% of European teachers indicate insufficient computer equipment and the low speed of internet connection at their school as key barriers. 14% show a lack of motivation, i.e., they are of the opinion that using computers in class does not result in significant learning benefits.

The situation in Malta is different. Lack of motivation and competence of teachers do not constitute a problem in Malta, but access to ICT does, since 45% of the teachers with the necessary skills and motivation indicate this to be a problem despite the fact that 100% of Maltese schools are equipped with ICT and have internet access.

Against this background one can conclude that there seems to be an ICT and access problem at Maltese schools where the pupil/computer ratio only reaches 11 computers for 100 pupils as opposed to for instance almost 30 computers in the European frontrunner country Denmark. As a consequence the ICT readiness of teachers in Malta only reaches average values when comparing it to the rest of the European countries.

ICT Readiness of Teachers in Malta: Percentage of Teachers Fully Ready to use Computers in Class (ACM Indicator) 2006



Source: *LeanInd CTS 2006;* ***Base:*** *All teachers.* ***Question:*** *See endnote 5*

ANNEXES

Methodology Report

Universe / Sample population

In order to assure the comparability of school levels in all countries UIS-OECD-EUROSTAT "Mapping of national education programmes to ISCED 97 for school academic/year 2002/2003" [5] was used for composing the sample frame. Based on this, each country divided its school system into ICSED codes and made different combinations that existed in its country.

Sampling frame and method

The sample was composed using official databases, which contained contact data of schools. In the majority of countries the sample was drawn from a database received from the Ministry of Education.

For each country a separate template of sample frames was composed by TNS Emor. These templates contained data about school types across regions as well as location type. School types were defined based on the ISCED codes provided in UIS-OECD-EUROSTAT. Location type distribution was made according to the Eurostat type of locality classification which differentiates densely populated, intermediate and thinly populated municipalities[6]. Apart from that, each country was divided into 3-7 regions depending on the size of a country.

Based on the data provided by countries, TNS Emor composed quotas for each country. Two level stratification was used – quotas for first stage, random sample for second. The quotation for region by school type and location type was endorsed. Simple random selection was conducted by the local agency or the local source of the contact base. Both private and public schools were included in the sample. It was also obligatory to include schools of other teaching languages than the official language of a country in the sample.

Simple random sampling was used inside a quota cell. This means that if the quota for primary schools in region1 was 100 and the total number of primary school in this region was 800, then a random sample selection was be made among those 800 schools. This covered both private and public schools and schools of other teaching languages than the official language of a country.

No more than 50% of interviews could be made in one school level. At least 10% of respondents had to be from schools which provided professional/vocational or combined programme of vocational and upper secondary level education (in case a country did not have special quota for those schools). It did not matter whether vocational education level was coded as ISCED 3 or ISCED 4.

There were no duplications in samples of head teacher and classroom teacher surveys. This was only allowed in countries with small universe sizes (e.g. Malta, Cyprus, Iceland, Estonia, Latvia etc) and in cases where the last quota cells were very difficult to achieve or there were not enough schools of a certain type. The priority was to include as many different schools as possible. In both surveys, 5 attempts were made before giving up and only if the respondent refused was this person not contacted again.

The CATI programme generated a randomly chosen letter. The interviewer asked for the person with a surname that started on the generated letter. If there was more than one teacher whose surname started with the selected letter, the person who was first alphabetically was chosen. If the correct person was not available, an appointment was made. At least 5 attempts were made before taking another teacher.

Only in Malta, due to instructions dictated by the Education Department, would the Head Teacher randomly select a teacher who would be available for an appointment during which they would be interviewed.

Number of interviews conducted (HTS / CTS)

Country		Head Teachers	Classroom teachers
BE	Belgium	450	807
CZ	Czech Republic	500	1000
DK	Denmark	315	848
DE	Germany	450	901
EE	Estonia	400	851
EL	Greece	500	1000
ES	Spain	518	1022
FR	France	501	869
IE	Ireland	403	626
IT	Italy	500	900
CY	Cyprus	150	600
LV	Latvia	451	902
LT	Lithuania	457	908
LU	Luxemburg	82	277
HU	Hungary	500	1000
MT	Malta	100	200
NL	Netherlands	515	890
AT	Austria	320	450
PL	Poland	500	1000
PT	Portugal	450	900
SI	Slovenia	253	460
SK	Slovakia	502	1000
FI	Finland	318	601
SE	Sweden	200	450
UK	United Kingdom	450	905
IS	Iceland	177	424
NO	Norway	494	708
TOTAL		**10456**	**20499**

Fieldwork

Fieldwork was coordinated by the TNS Emor and conducted in cooperation with its local TNS offices excluding Iceland, Cyprus, Austria, Slovenia and Malta where TNS does not have offices. In these countries partners with whom TNS had previous experience were used.

Pilot interviews prior to the regular fieldwork were conducted with 20 schools in both target groups in Estonia and Greece in February 2006, in order to test the questionnaire (structure, comprehensibility of questions).

Between March and April 2006, surveys among head teachers (head teacher survey - HTS) and classroom teachers (CTS) were carried out in 27 European countries. TNS Emor was responsible for the fieldwork.

Weighting schemes

After the fieldwork, weighting coefficients were computed using region, location type and school type.

Statistical accuracy of the survey: confidence intervals

Statistics vary in their accuracy, depending on the kind of data and sources. A "confidence interval" is a measure that helps to assess the accuracy that can be expected from data. The confidence interval is the estimated range of values on a certain level of probability of error. Confidence intervals for estimates of a population fraction (percentages) depend on the sample size, the probability of error, and the survey result (value of the percentage) itself. Further to this, variance of the weighting factors has negative effects on confidence intervals.

The calculation of confidence intervals is based on the assumption of (quasi-) infinite population universes. In practice, however, in some countries and for some school levels the complete population of schools consists of only several hundred or even a few dozen of schools. In some cases, literally each and every school within a country-school type cell was contacted and asked to participate in the survey. This means that it is practically impossible to achieve a higher confidence interval through representative school surveys in which participation is not obligatory.

Country Background Data

Malta has a below average GDP per Capita, a medium GDP growth rate and a high pupil/teacher ratio. A small share of 4.6% of GDP is spent on education, whereas expenditure on secondary education exceeds the investments of most other European countries.

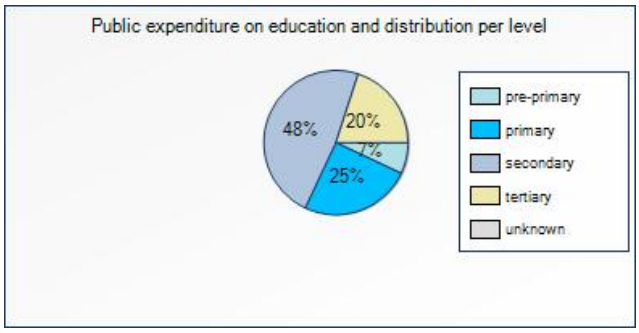
General Population Data for Malta 2002/03[7]

Total population (000)	393
Annual population growth rate (%)*	0.5
Population 0-14 years (%)	19
Rural population (%)*	9
Total fertility rate (births per woman) *	1.5
Infant mortality rate (0/00) *	6
Life expectancy at birth (years) *	78
GDP per capita (PPP) US$ *	17,837
GDP growth rate (%)*	2.2
* World Bank World Development Indicators	

Resources for Education in Malta 2002/03

Pupil / teacher ratio (primary)	18
Public expenditure on education :	
as % of GDP	4.6
as % of total government expenditure	…
Distribution of public expenditure per level (%):	
pre-primary	7
primary	25
secondary	48
tertiary	20
unknown	-

Resources for Education in Malta 2002/03



The Educational System in Malta[8]

In 2003 the number of people aged 29 or under was 157,848 (40.59% of the total population). The number of children of compulsory school age was about 62,550 (16.1%) of the population. Of these about 64% attend full-time education in state schools, while the remaining 36% attend the non-state sector. The official languages of instruction are Maltese and English.

State education is free of charge from pre-primary up to tertiary level. Within the compulsory school age (5 to 16 years) children attending state education are provided with free textbooks and school transport. The non-state education sector is sub-divided into Church schools and independent schools. The Church schools are predominantly Roman Catholic schools and are heavily subsidised by the government. Church schools do not charge any tuition fees.

Independent schools are set up by individuals or non-profit parents' foundations. The government gives tax rebates to parents whose children attend these schools. The Ministry of Education, Youth and Employment (MEYE) is responsible for the administration, organization and the financial resources in state schools. Legislation empowers the Minister of Education, Youth and Employment or his/her representative to monitor the functioning of schools within the non-state sector. The central government department that is responsible for implementing the policy of the MEYE is the Education Division (ED). It is responsible for education from kindergarten up to the end of compulsory education. Within the ED there are Education Officers who monitor the teaching/learning relationship. They provide support and advice to teachers and school management. Local government as yet has not been vested with responsibilities for education. Institutions offering upper/post-secondary education include the Junior College, the Malta College of Arts, Science and Technology

(MCAST) and the Institute of Tourism Studies (ITS). The former provides a general/academic education and prepares students for University entry, while the latter two provide vocational education and training courses. These institutions are autonomous bodies/legal entities which fall under the responsibility of the MEYE. The University of Malta, a state-funded institution, provides tertiary education. Full time students attending upper secondary/post-secondary institutions and university receive a maintenance grant.

The use of ICT in Education[9]

Lifelong learning has been the overarching aim of all initiatives being undertaken by the Ministry of Education, Youth and Employment.

Government for several years has been investing heavily in the IT infrastructure at the national level as well as in schools, strongly believing that IT is a cornerstone for the knowledge society. Government has established a number of partnerships with international IT providers and set up academies in order to further promote IT in all fields of business, government services and throughout life. Hence, more importance is being given to the teaching of science and technology in primary and secondary schools.

Information and communication technology has been phased into both primary and secondary education during the last decade and today all primary classes have a number of computers and all secondary schools are well equipped with computer laboratories. All computers are interconnected through Internet. Each student has been provided with an email address and the possibility of a web-page. At the end of the secondary education course students can qualify for the European Computer Driving Licence (ECDL). ECDL courses have been offered to all teachers free of charge in order to further enhance the IT literacy of teachers at all levels.

Secondary schools have been provided with technology workshops that are appropriately equipped with the necessary machines and materials. The curriculum and the related methodology are expected to make the subject attractive and to encourage students to take a vocational course later on. Teachers of Technology have received ample in-service training to update them particularly in the creating, design and make methodology. Again, large scale training of teachers has been organised in order to ensure that information technology will eventually become common teaching and learning tools. More teacher training still needs to be done in both technology and ICT in order to exploit the current investment to the full.

The Study

There is a lack of information on the actual use of ICT for learning in schools and for supporting political action in potential future programmes. It is necessary to clarify matters such as the educational vision of heads of schools, the current impact of ICTs on teachers' practice, support and training and on other factors for success in e-learning.

The objective of the study is to obtain estimates for the eEurope 2005 indicator on e-learning "number of pupils per computer with Internet connection (broadband/non-broadband)" and relate it to other possible indicators of educational use of ICT in compulsory education (e-learning in schools). The study looks at how Information and Communication Technologies (ICT) are used in schools.

The study is a continuation of the earlier benchmarking exercise for eEurope 2002.

It involved two surveys. Firstly of head teachers to obtain information on the schools and then of teachers to focus on their use of ICTs in the teaching process

This exercise is part of the Information Society monitoring and benchmarking process for which the Commission in cooperation with the Council defined benchmarking indicators.

Country Briefs

This document has been prepared by **empirica** based on own desk research and the above mentioned primary data sources: Head Teacher Survey (HTS) 2006 and Classroom Teacher Survey (CTS) 2006 in the EU25 member states, Iceland and Norway.

Altogether 27 LearnInd Country Briefs are available in a common format, one for each member of the enlarged European Union, Norway and Iceland.

Also a final report has been developed. It includes approximately 100 exhibits, more than 250 data tables and a report about the key results.

You can access and download these documents in PDF format (for free) from http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm.

More information

Check our results and achievements on: http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm. If you wish to be provided with more details, or to receive news and updates, please contact us at: **learnind@empirica.com** or get in touch with us.

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1 Note that "in class" means during lessons while teaching and does not denote a particular location such as a classroom.

2 Base (100%) = all teachers who have used a computer in class in the last 12 months.

3 Viherä, M-L, Nurmela, J (2001) "Communication Capability Is an Intrinsic Determinant for Information Age", in Futures, Volume 33, Issue 3-4:245-265.

4 Synthetic indicators: Access: Q14 (2) "Our school is well equipped with computers" and Q14 (3) "The internet connection we have is sufficiently fast ".

Competence: Q11 How confident do you feel... a) using a text processor, b) creating a presentation c) using e-mail, d) downloading and installing software. Threshold: Average of 2.5 or more on a 1-4 confidence scale

Motivation: Q14 (8); disagree with "Using computers in class does not result in significant learning benefits".

For full question wordings refer to questionnaire.

[5] http://forum.europa.eu.int/Public/irc/dsis/edtcs/library?l=/public/unesco_collection/programmes_isced97&vm=detailed&sb=Title

[6] Densely populated area refers to a set of closely related local units, each one of which having a density greater than 500 inhabitants per km2, and the total population of which being of at least 50 000 inhabitants; Intermediate area refers to a set of closely related local units that do not pertain to a densely populated area, each one of which having density greater than 100 inhabitants per km2, and where the total population is at least of 50 000 inhabitants or it refers to a set that is adjacent to a highly populated area. Thinly populated area (rural): refers to a set of closely related local units that are not part of a densely populated area, or of an intermediate area. (A set of local areas totalling less than 100 km², not reaching the required density, but entirely enclosed within a densely-populated or intermediate area, is to be considered to form part of that area. If it is enclosed within a densely-populated area and an intermediate area it is considered to form part of the intermediate area).

[7] Source: http://www.uis.unesco.org/profiles/selectCountry_en.aspx

(visited 28 March 2006)

[8] Source: http://www.eurydice.org/Documents/struct2/frameset_EN.html (visited: 28 March 2006)

[9] Source: http://europa.eu.int/comm/education/policies/2010/nationalreport_en.html (visited: 9 May 2006)